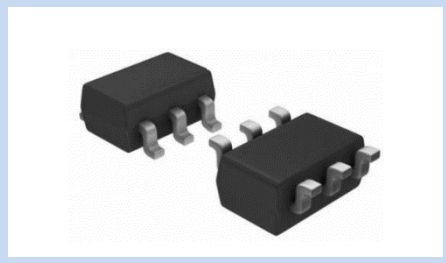
2N Channel MOSFET
60V 0.3A 295mW SOT-363 ESD

MFT62NA3S363E

MERITEK

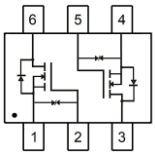
FEATURE

- $R_{DS(ON)}$<3Ω, V_{GS}=10V, I_D=500mA
- $R_{DS(ON)}$ <4Ω, V_{GS}=5V, I_D=50mA
- Low On Resistance $R_{DS(ON)}$
- Low Gate Threshold Voltage
- ESD Protected Gate



MECHANICAL DATA

- Case: SOT-363 Package
- Terminals: Solderable per MIL-STD-750, Method 2026



RoHS

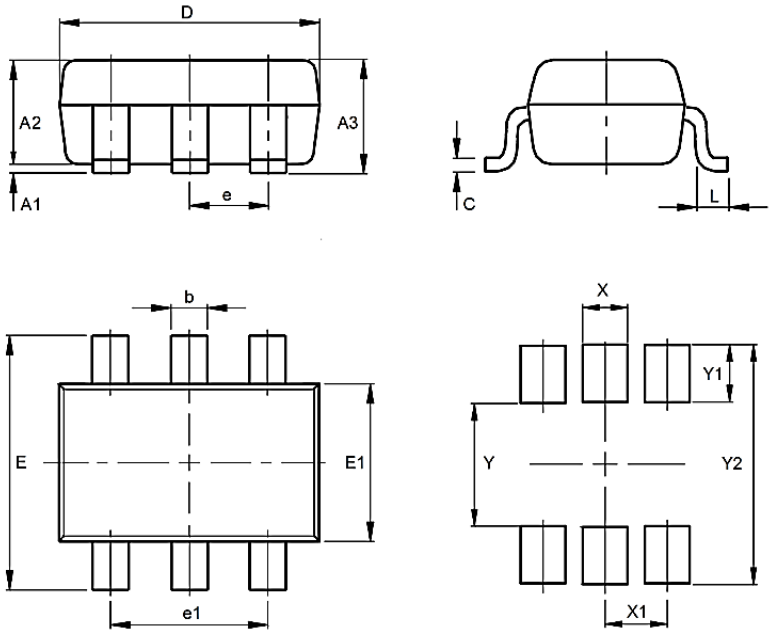
MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current – Continuous		I_D	300	mA
Drain Current – Pulsed		I_{DM}	1200	mA
Power Dissipation	Note 2	P_D	295	mW
	Note 3		350	mW/°C
Thermal Resistance Junction to Ambient	Note 2	$R_{\theta JA}$	423	°C/W
	Note 3		357	
Operating Junction and Storage Temperature		T_J, T_{STG}	-55 to +150	°C

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.90	1.00
A3	-	1.10
b	0.10	0.30
c	0.10	0.25
D	1.80	2.20
E	2.00	2.20
E1	1.15	1.35
e	0.65	
e1	1.30	
L	0.15	0.40
X	0.42	
X1	0.65	
Y	1.30	
Y1	0.60	
Y2	1.90	

Note: 1: Source, 2: Gate, 3: Drain, 4: Source, 5: Gate, 6: Drain

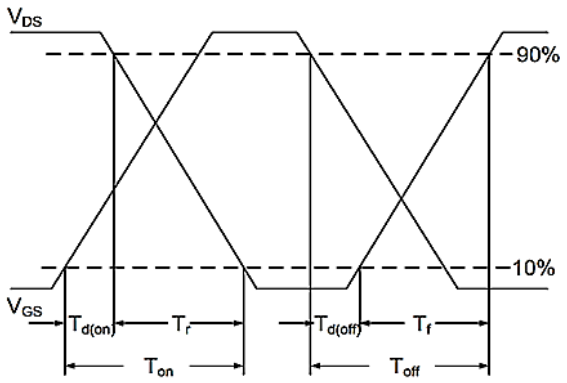


DIMENSIONS ELECTRICAL CHARACTERISTICS

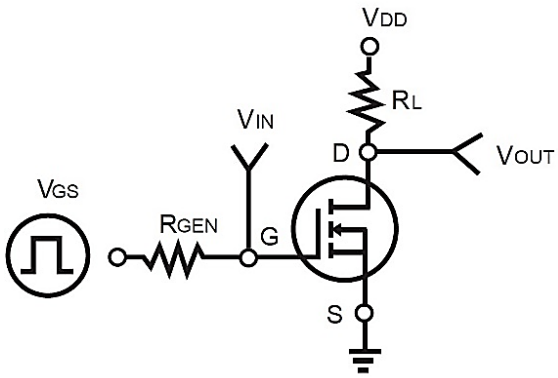
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=10uA	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	V_{DS}=60V	I_{DSS}	--	--	1	μA
Gate-Source Leakage Current	V_{GS}=±20V	I_{GSS}	--	--	±10	μA
On Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Static Drain-Source On-Resistance	V_{GS}=10V, I_D=500mA	$R_{DS(ON)}$	--	--	3	Ω
	V_{GS}=5V, I_D=50mA		--	--	4	
Gate Threshold Voltage	V_{DS}=10V , I_D=250uA	$V_{GS(th)}$	1.10	--	1.75	V
Forward Transconductance	V_{DS}=10V, I_D=200mA	g_{FS}	80	--	--	mS
Dynamic Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Gate Resistance	V_{DS}=0V, V_{GS}=0V, F=1MHz	R_g	--	200	--	Ω
Total Gate Charge	V_{DS}=10V, V_{GS}=4.5V, I_D=0.5A	Q_g	--	0.44	--	nC
Gate-Source Charge		Q_{gs}	--	0.20	--	
Gate-Drain Charge		Q_{gd}	--	0.10	--	
Turn-On Delay Time	V_{DD}=30V, V_{GS}=10V, R_G=25Ω I_D=0.5A,	$T_{d(on)}$	--	2.7	--	ns
Rise Time		T_r	--	2.5	--	
Turn-Off Delay Time		$T_{d(off)}$	--	13.0	--	
Fall Time		T_f	--	8.0	--	
Input Capacitance	V_{DS}=25V, V_{GS}=0V, F=1MHz	C_{iss}	--	21	--	pF
Output Capacitance		C_{oss}	--	12	--	
Reverse Transfer Capacitance		C_{rss}	--	0.35	--	
Drain-Source Body Diode	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Diode Forward Voltage	V_{GS}=0V , I_S=0.5A	V_{SD}	--	0.85	--	V
Reverse Recovery Time	I_S=0.5A, di/dt=100A/μs	T_{rr}	--	30	--	ns
Reverse Recovery Charge		Q_{rr}	--	29	--	nC

Note:
1. T_A =25℃ unless otherwise noted
2. Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint
3. Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for drain 1 cm^2.

Switching Time Waveform

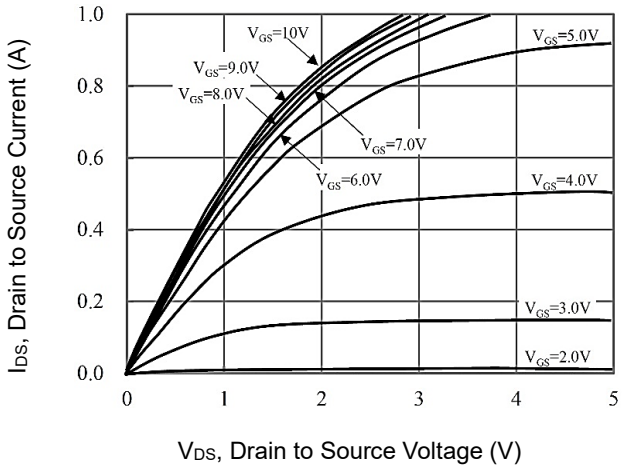


Switching Test Circuit

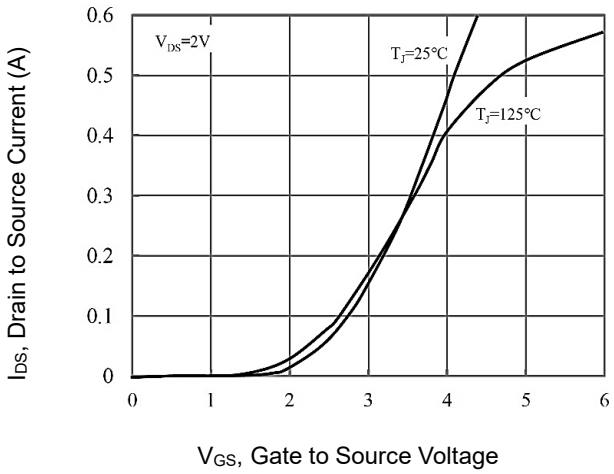


CHARACTERISTIC CURVES

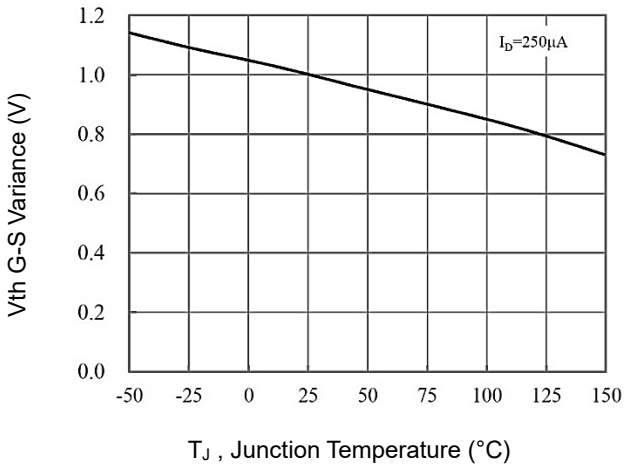
On-Region Characteristics



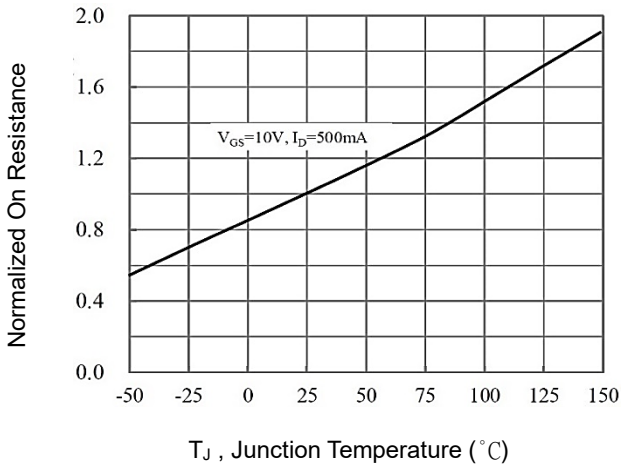
Transfer Characteristics



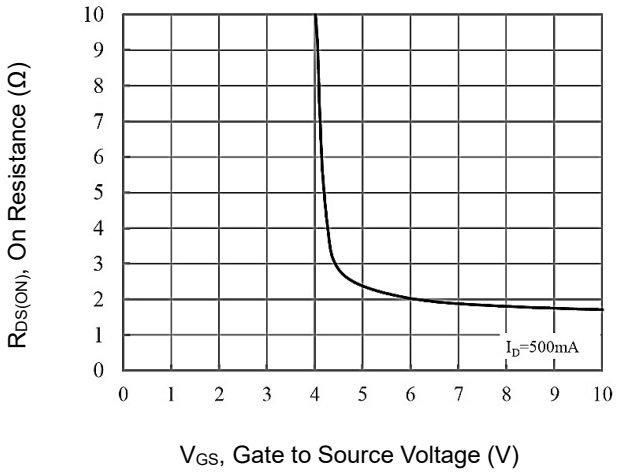
Threshold Voltage Variance vs. Temperature



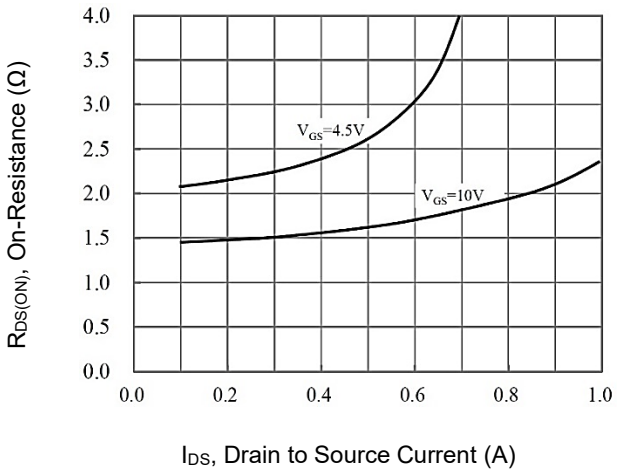
On-Resistance vs. Junction Temperature



On-Resistance Variation with V_{GS}

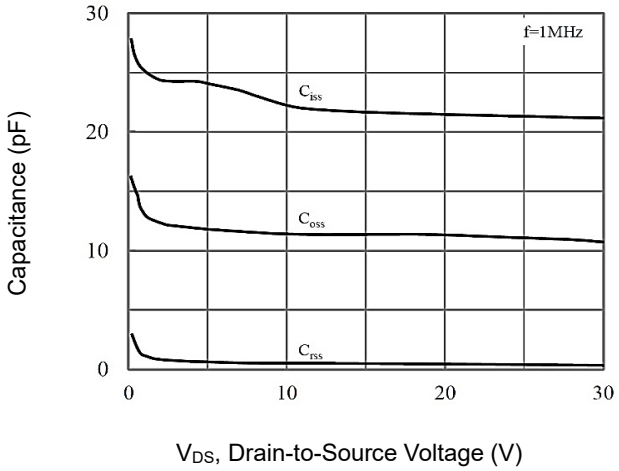


On-Resistance vs. Drain Current

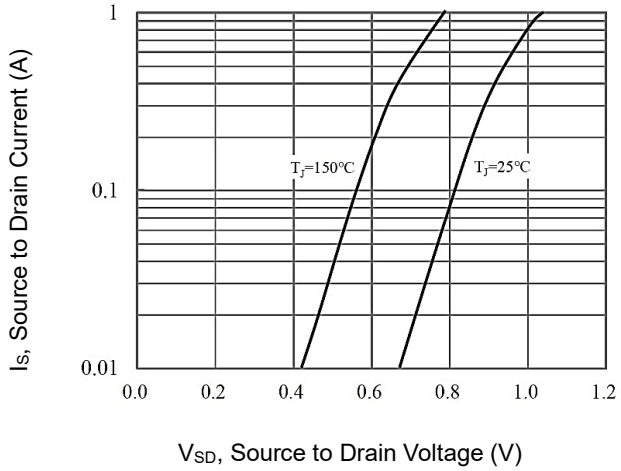


CHARACTERISTIC CURVES

Capacitance vs. Drain-Source Voltage



Body Diode Characteristics



Gate Charge Waveform